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2

D412-664-203TRN
Job Sheet 202953



Part No: D412-664-203TRN

Job Qty: 1 pcs

Part Name: Crosstube Turning Detail



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 11/5/19

Job Tracking No:

Due Date: 12/12/19

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: D412-664-243 REV F IPP Rev:A 08-03-06 new issue DD verified by:eec IPP Rev B 08.04.02 Removed polish
EC verified by: DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Lead Time	Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier			
100	Mori Seiki TL-40 - 1	1 pcs		12/12/19	1.00	2.25	Mori Seiki TL-40 - 1			DAS 66 2019/11/12 9-89
110	QC 2	1 pcs		12/12/19	0.00	0.00	QC 2 - 1			
							QC 2 - 12			
							QC 2 - 14			
							QC 2 - 17			
							QC 2 - 19			
							QC 2 - 2			
							QC 2 - 20			
							QC 2 - 22			
							QC 2 - 23			
							QC 2 - 25			
							QC 2 - 32			
							QC 2 - 33			
							QC 2 - 35			
							QC 2 - 39			
							QC 2 - 4			
							QC 2 - 40			
							QC 2 - 44			
							QC 2 - 45			
							QC 2 - 48			
							QC 2 - 49			
							QC 2 - 50			
							QC 2 - 51			
							QC 2 - 52			
							QC 2 - 57			
							QC 2 - 62			
							QC 2 - 63			
							QC 2 - 8			DAS 66 2019/11/12 9-89
							QC 2 - 66			
							QC 2 - 64			

				QC 2 - 65	
				QC 2 - 5	
				QC 2 - 71	
				QC 2 - 73	
				QC 2 - 69	
120	Mori Seiki TL-40 - 2 - B4B	1 pcs	12/12/19 1.00 3.00	Mori Seiki TL-40 - 1 - B4B	DAS 66 2019/11/14 9-89
130	QC 2	1 pcs	12/12/19 0.00 0.00	QC 2 - 1	
				QC 2 - 12	
				QC 2 - 14	
				QC 2 - 17	
				QC 2 - 19	
				QC 2 - 2	
				QC 2 - 20	
				QC 2 - 22	
				QC 2 - 23	
				QC 2 - 25	
				QC 2 - 32	
				QC 2 - 33	
				QC 2 - 35	
				QC 2 - 39	
				QC 2 - 4	
				QC 2 - 40	
				QC 2 - 44	
				QC 2 - 45	
				QC 2 - 48	
				QC 2 - 49	
				QC 2 - 50	
				QC 2 - 51	
				QC 2 - 52	
				QC 2 - 57	
				QC 2 - 62	
				QC 2 - 63	
				QC 2 - 8	DAS 66 2019/11/19 9-89
				QC 2 - 66	
				QC 2 - 64	
				QC 2 - 65	
				QC 2 - 5	
				QC 2 - 71	
				QC 2 - 73	
				QC 2 - 69	
140	QC 8	1 pcs	12/12/19 0.00 0.00	QC 8 - 12	
				QC 8 - 14	
				QC 8 - 17	
				QC 8 - 20	
				QC 8 - 25	
				QC 8 - 3	
				QC 8 - 32	
				QC 8 - 33	
				QC 8 - 35	
				QC 8 - 39	
				QC 8 - 4	
				QC 8 - 44	
				QC 8 - 45	
				QC 8 - 49	
				QC 8 - 58	
				QC 8 - 8	
				QC 8 - 9	
				QC 8 - 68	

				QC 8 - 67	
				QC 8 - 1 (A)	
				QC 8 - 47	
				QC 8 - 40	
				QC 8 - 52	
				QC 8 - 23	
				QC 8 - 57	DAS 76 9-89
				QC 8 - 76	
				QC 8 - 61	
145 Crosstubes - 2 - B4B	1 pcs	12/12/19	0.00 0.25	Crosstubes - 1 - B4B	
				Crosstubes - 2 - B4B	
				Crosstubes - 3 - B4B	W 19-12-9
				Crosstubes - 4 - B4B	
150 Handfinish - 1-1 Chemical-B4B	1 pcs	12/12/19	0.00 1.00	Handfinish - 1 - 1 - B4B	
				Handfinish - 1 - 2 - B4B	
				Handfinish - 1 - 3 - B4B	X DEC 11 2019
				Handfinish - 1 - 4 - B4B	
				Handfinish - 1 - 5 - B4B	
				Handfinish - 1 - 6 - B4B	
				Handfinish - 1 - 7 - B4B	
				Handfinish - 1 - 8 - B4B	
				Handfinish - 1 - 9 - B4B	
				Handfinish - 1 - 10 - B4B	
				Handfinish - 1 - 11 - B4B	
				Handfinish - 1 - 12 - B4B	
				Handfinish - 1 - 13 - B4B	
				Handfinish - 1 - 14 - B4B	
				Handfinish - 1 - 15 - B4B	
				Handfinish - 1 - 16 - B4B	
				Handfinish - 1 - 17 - B4B	
				Handfinish - 1 - 18 - B4B	
				Handfinish - 1 - 19 - B4B	
				Handfinish - 1 - 20 - B4B	
				Handfinish - 1 - 21 - B4B	
				Handfinish - 1 - 22 - B4B	
160 QC 7	1 pcs	12/12/19	0.00 0.00	QC 7 - 10	
				QC 7 - 13	
				QC 7 - 14	
				QC 7 - 15	
				QC 7 - 17	
				QC 7 - 18	
				QC 7 - 19	
				QC 7 - 2	
				QC 7 - 28	
				QC 7 - 3	
				QC 7 - 30	
				QC 7 - 34	
				QC 7 - 36	

				QC 7 - 37	
				QC 7 - 41	
				QC 7 - 47	
				QC 7 - 48	
				QC 7 - 51	
				QC 7 - 58	
				QC 7 - 59	
				QC 7 - 60	
				QC 7 - 9	
				QC 7 - 68	
				QC 7 - 50	
				QC 7 - 67	
				QC 7 - 40	
				QC 7 - 24	
				QC 7 - 43	
				QC 7 - 61	DAS
				QC 7 - 81	76
				QC 7 - 76	9-89
				QC 7 - 79	
170 Packaging 3-1 - Stock - B4B	1 pcs	12/12/19	0.00 0.00	Packaging 3 - 1 - B4B	
				Packaging 3 - 2 - B4B	
				Packaging 3 - 3 - B4B	
				Packaging 3 - 4 - B4B	
				Packaging 3 - 5 - B4B	
				Packaging 3 - 6 - B4B	
				Packaging 3 - 7 - B4B	
				Packaging 3 - 8 - B4B	
				Packaging 3 - 9 - B4B	
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	135 12/16/2019
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	
				Packaging 3 - 36 - B4B	
180 QC 21 - SA	1 pcs	12/12/19	0.00 0.00	QC 21 - SA - 21	DAS
				QC 21 - SA - 70	21
				QC 21 - SA - 53	9-89

Part Op 100 - 1-Fill tube with sand & Install plugs 412-203 on both ends as per Folio FA166 2-Face both sides of tube 3-Turn first

Descriptions: taper section on both side as per Folio FA166 4- blend transition lines using belt sander with 60 grit sandpaper
110 - (QC2- Inspect parts off machine FAI/FAIB)
120 - Mori Seiki TL-40 (Mori Seiki CNC Lathe Large) 1-Turn second taper on both sides as per Folio FA166 2- Blend transition lines using belt sander with 60 grit sandpaper. 3- Remove sand and plugs 4-Scribe part # and batch # using vibrating stilus
130 - (QC2- Inspect parts off machine FAI/FAIB)
140 - (QC8- Inspect parts - second check)
145 - GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.
150 - 1- handfinish X-TUBE INSIDE AND OUT
160 - (QC7-Inspect Chemical Conversion Coat)
170 - (Identify as per dwg & Stock Location:) LOCATION : LG014
180 - (QC21- Final Inspection - Work Order Release)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6009-129	Crosstube Material	1 pcs (1 ea)	100-Mori Seiki TL-40 - 1	F139425

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-Mori Seiki TL-40 - 1	D6009-129	1	76	0

Part Specifications

Specifications could not be found.



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Plex 11/5/19 2:34 PM Dart.lajeunesse.marie

Container No: S231115



Part: D412-664-203TRN

Job No: 202953

Serial No/Batch: S231115

Revision: F

Inspector:

Exp Date:

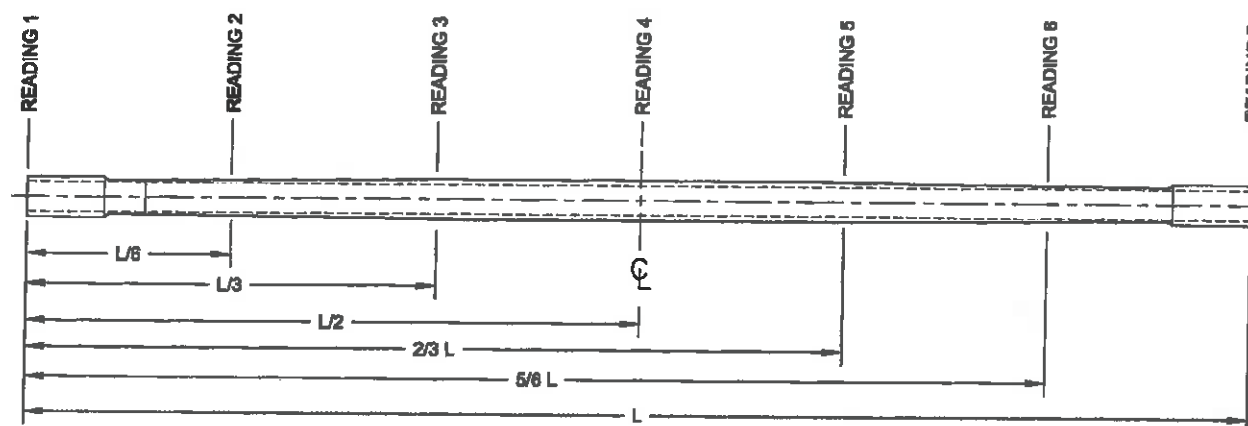
Instructions:

Date: 11/12/19

②

DART AEROSPACE LTD		Work Order: 202953
Description: Crosstube Assembly (412 High Aft)		Part Number: D412-664-243
Inspection Dwg: D412-664-243 Rev: F		Page 2 of 2

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L= 0"	380	358	354	370	.026	0.073"
READING 2 L= 20.683	323	313	291	290	.033	
READING 3 L= 41.367	496	479	451	463	.045	
READING 4 L= 62.050	634	627	617	627	.017	
READING 5 L= 82.733	484	456	456	490	.034	
READING 6 L= 103.417	323	312	296	298	.027	
READING 7 L= 124.100	371	371	357	357	.014	

Calibration Result

Actual Block Thickness: 100-750

SITESCAN 250 Measured Thickness: 100-750

Measured by: DAS 66	Audited by: DAS 76 9-89	Preliminary Approval: _____
Date: 2019/11/19	Date: 2019/11/19	Date: _____

Rev	Date	Change	Revised by	Approved
A	04.06.16	New Issue (P/O D412-664-203)	KJ/JLM	
B	06.03.09	Dwg Rev updated	KJ/JLM	
C	07.05.08	Tolerance updated for dimension 4.971	KJ/JLM	
D	10.02.02	Dimension 124.100 was 124.09	KJ	
E	12.06.04	Wall thickness form added	KJ	
F	14.06.24	Dwg Rev updated	KJ	

②

DART AEROSPACE LTD		Work Order:	202953
Description: Crosstube Assembly (412 High Aft)		Part Number:	D412-664-243
Inspection Dwg: D412-664-243 Rev: F		Page 1 of 2	

FIRST ARTICLE INSPECTION CHECKLIST

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.684	+0.005/-0.000	2.689	✓	CNC-04	
	2.748	+0.005/-0.000	2.753	✓		
	2.884	+0.005/-0.000	2.889	✓	↓	
	3.019	+0.005/-0.000	3.024	✓	CNC-05	
	3.163	+0.005/-0.000	3.168	✓		
	3.308	+0.005/-0.000	3.313	✓	↓	
	3.429	+0.005/-0.000	3.434	✓		
	2.990	+0.005/-0.000	2.995	✓	CNC-04	
	2.618	+0.005/-0.000	2.623	✓	"	
	0.200	+/-0.010	.204	✓	CNC-08	
	R0.063	+/-0.010	.063	✓	AG	
	R0.500	+/-0.010	.500	✓	"	
	4.971	+/-0.030	4.975	✓	CNC-08	
SIDE B	2.684	+0.005/-0.000	2.689	✓	CNC-04	
	2.748	+0.005/-0.000	2.753	✓		
	2.884	+0.005/-0.000	2.889	✓	↓	
	3.019	+0.005/-0.000	3.024	✓	CNC-05	
	3.163	+0.005/-0.000	3.168	✓		
	3.308	+0.005/-0.000	3.313	✓	↓	
	3.429	+0.005/-0.000	3.434	✓		
	2.990	+0.005/-0.000	2.995	✓	CNC-04	
	2.618	+0.005/-0.000	2.623	✓	"	
	0.200	+/-0.010	.198	✓	CNC-08	
	R0.063	+/-0.010	.063	✓	AG	
	R0.500	+/-0.010	.500	✓	"	
	4.971	+/-0.030	4.977	✓	CNC-08	
	124.100	+/-0.020	124.120	✓	Tape	

Item	Qty	Part Number	Description
1	-243		
1	X	D412-884-243	CROSSTUBE ASSEMBLY (412 HIGH AFT)
2	1	D6009-128	CROSSTUBE
3	2	D3655-063-570	RUBBER CUSHION
4	1	D2886-1	SUPPORT
5	2	D3189-1	CHAFING SHIELD
7	4	MS21920-28	CLAMP
8	2	MS21920-30	CLAMP (OR MS21920-32)
9	AR	SCOTCH-WELD DP460	EPOXY ADHESIVE, 3M SCOTCHWELD
10	AR	PROSEAL 880 B-2	SEALANT

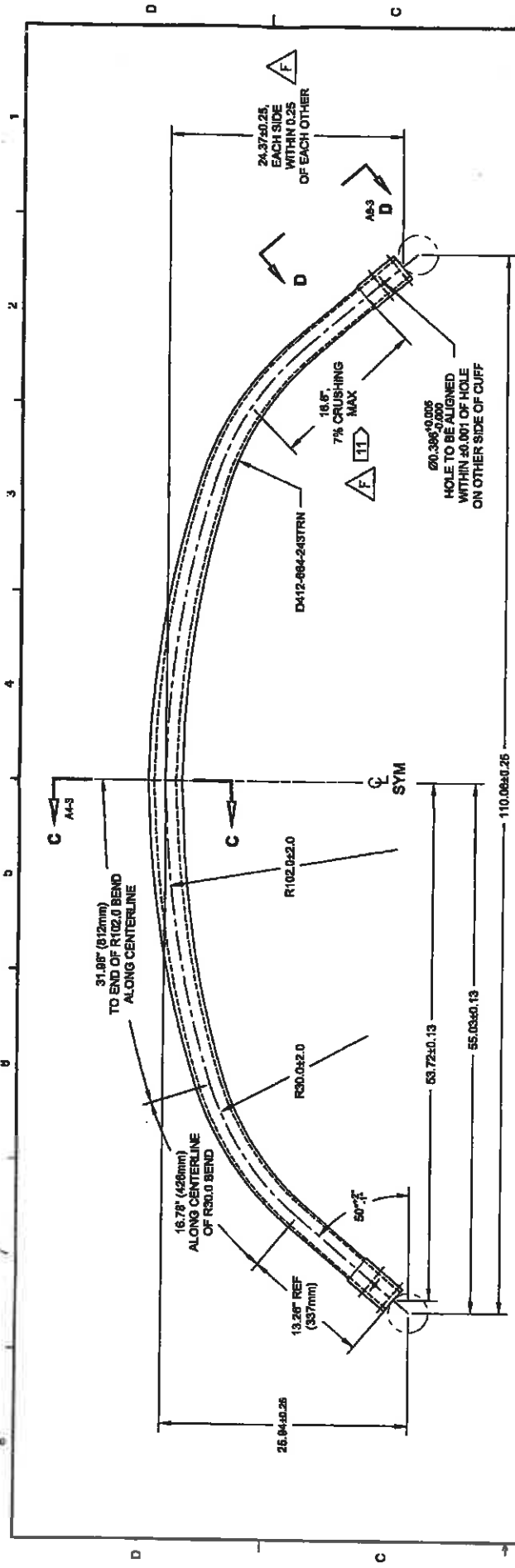
GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6009-128
- 2) FINISH: PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.1
MASK UNDERSIDE OF CROSSTUBE AS SHOWN (ZIN C8-2, HATCHED AREA)
PAINT UNDERSIDE PER DART QSI 005 4.2
AFTER PAINTING, REMOVE MASKING AND APPLY MATTE CLEAR COAT
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: DART P/N 'D412-884-243' AND B/N ON INSIDE OF CUFF PER QSI 044 6.4 (VIBRATING STYLUS)
- 7) WEIGHT: 47.0 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE
- 9) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. DO NOT GRIND TUBE AFTER SHOT PEEN.
- 10) WHEN TRANSITIONING TO STOCK MAT'L, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 11) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 7% (BASED ON O.D.) IN LOWER HALF OF R50 BEND AND 8% (BASED ON O.D.) ON REMAINING TUBE.
- 12) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038. TO BE PERFORMED AFTER FINAL POST-BEND GRINDING. ANY ADDITIONAL GRINDING REQUIRES ANOTHER LPI INSPECTION.
- 13) INSTALL D2886-1 CENTER SUPPORT USING A 0.04" TO 0.07" THICK LAYER OF SCOTCH-WELD DP460 PER QSI 015.
- 14) CROSSTUBE ENSURE CLAMPS ARE ON TOP SIDE OF CROSSTUBE.
- 15) APPLY A THIN COAT OF PROSEAL 880 ON INSIDE CONCAVE SURFACE OF D3189-1 CHAFING SHIELD AND LET CURE PER MANUFACTURER'S INSTRUCTIONS. INSTALL PROSEAL 880 ON INSIDE CONCAVE SURFACE OF CROSSTUBE BY APPLYING A THIN COAT OF PROSEAL 880 ONTO CROSSTUBE. BE SURE TO ELIMINATE ANY AIR GAPS.
- 16) TORQUE CLAMPS ON D2886-1 SUPPORT 80 TO 100 IN-LB. TORQUE CLAMPS ON D3189-1 CHAFING SHIELD 40 TO 50 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVES HAVE CURED FOR 24 HOURS.

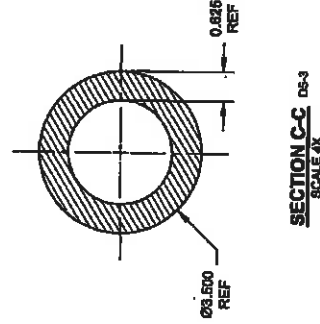
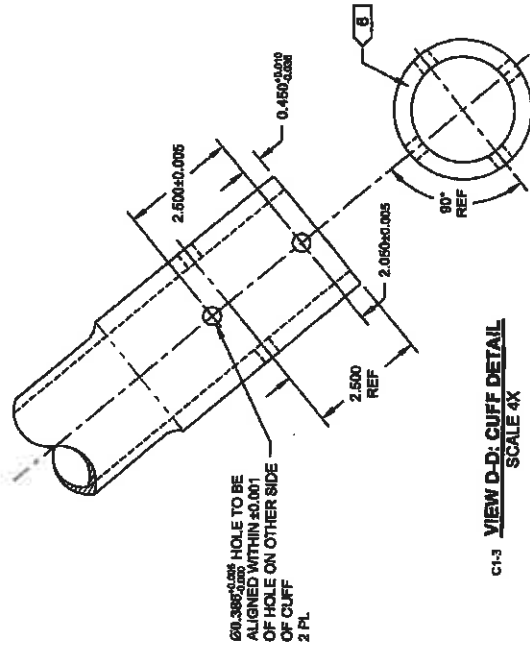
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WITHOUT NOTICE
WORK ORDER
NO. 262953 M15
19-11-2018

RELEASED
2014-05-26

F	NOTES RE-ORDERED, SCOTCH-WELD WAS MAGNABOND (C8-1), ADD CLAMP RETORQUE (A8-1), REMOVE ABRASION STRIP, ADD INSPECTION WINDOW (C8-1), CHAFING SHIELD NOW 4.38 WIDE (C8-2), ADD 7% CRUSHING (B8-1), CHG BEND HEIGHT TOL. TO 40.28 (C1-3), CHG CUFF TOL. (D2-4), CLAMPS FLIPPED TO PREVENT CHAFING (B7-2, B7-3), INCRIP. DED E-3-4.	CP	14.04.01
E	REFORMAT/REVISE GENERAL NOTES; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; RELOCATED FLAG #8 PER PART 06-08 (ZIN A8-3); ADD TOLERANCE (ZIN B8-3, C4-3, C4-4 & C8-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 1.	RF	08.08.30
D	REMOVE D2732-056, CHANGE TO D3595-063-570	PH	07.03.09
C	REMOVE D2886-800-1087, ADD D2732-058 A	MB	06.10.37
B	MAGNABOND 8390, MS21920-32 WAS MS21920-30	PH	05.02.04
A	ADD HOLES FOR COMPATIBILITY WITH BHT/AA SKIDTUBES	PH	01.10.17
REV.	NEW ISSUE	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	14.04.01		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWING NO. D412-884-243			
SHEET 1 OF 4			
TITLE CROSSTUBE ASSEMBLY (412 HI AFT)			
SCALE NTS			
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D412-864-803 **BENDING AND DRILLING DETAIL**



RELEASED
R 2014-05-26

DESIGN		DART AEROSPACE LTD	REV. F
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	SHEET 3 OF 4
MFG. APPR.		D412-864-243	
APPROVED		TITLE	CROSSTUBE ASSEMBLY (412 HI AFT) NTS
DATE	14.04.01		

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